

SEQUENCE LISTING

<110> Washington State University Research Foundation
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<120> MDR1 VARIANTS AND METHODS FOR THEIR USE

<130> 4630-61733

<150> US 60/261,578

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<160> 10

<170> PatentIn version 3.1

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ttc tgg aaa atg ggc aaa aaa agt aaa aaa gag aag aaa gaa aag aaa 159
Phe Trp Lys Met Gly Lys Lys Ser Lys Lys Glu Lys Lys Glu Lys Lys
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cca act gtc agc acg ttt gca atg ttt cgc tat tca aat tgg ctt gat 207
Pro Thr Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp
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agg ttg tat atg ttg gtg ggg aca atg gct gcc atc atc cat gga gct 255
Arg Leu Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala
50 55 60

gca ctc cct ctc atg atg ctg gtt ttt gga aac atg aca gat agc ttt 303
Ala Leu Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe
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gca aat gca gga att tca aga aac aaa act ttt cca gtt ata att aat 351
Ala Asn Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn
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gaa agt att acg aac aat aca caa cat ttc atc aac cat ctg gag gag 399
Glu Ser Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu
95 100 105 110

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ctg gtg gct gct tac atc cag gtt tca ttc tgg tgc ctg gca gca gga Leu Val Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly 130 135 140	495
aga cag ata ctc aaa att aga aaa caa ttt ttt cat gct atc atg cga Arg Gln Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala Ile Met Arg 145 150 155	543
cag gag att ggc tgg ttt gac gtg cat gac gtt ggg gag ctt aac acc Gln Glu Ile Gly Trp Phe Asp Val His Asp Val Gly Glu Leu Asn Thr 160 165 170	591
egg ctc aca gac gat gtc tcc aaa atc aat gaa gga att ggc gac aaa Arg Leu Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile Gly Asp Lys 175 180 185 190	639
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tca ttt act gat aaa gaa ctc ttg gcc tat gca aaa gct gga gca gta Ser Phe Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala Gly Ala Val 240 245 250	831
gct gaa gaa gtc tta gca gca atc aga act gtg att gcc ttt gga gga Ala Glu Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala Phe Gly Gly 255 260 265 270	879
caa aag aaa gaa ctt gaa agg tac aac aaa aat tta gaa gaa gct aaa Gln Lys Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu Glu Ala Lys 275 280 285	927
aga att ggg ata aag aaa gct atc acg gcc aac att tct att ggt gcc Arg Ile Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser Ile Gly Ala 290 295 300	975
gct ttc tta ttg atc tat gca tca tat gct ctg gct ttc tgg tat ggg Ala Phe Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe Trp Tyr Gly 305 310 315	1023
acc tcc ttg gtc ctc tcc agt gaa tat act att gga cag gta ctc act Thr Ser Leu Val Leu Ser Ser Glu Tyr Thr Ile Gly Gln Val Leu Thr 320 325 330	1071
gtc ttc ttt tct gta tta att ggg gct ttt agt att gga cag gca tcc Val Phe Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly Gln Ala Ser 335 340 345 350	1119

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ttc aag ata att gac aat aaa cca agc att gac agc tat tcg aag agt Phe Lys Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr Ser Lys Ser 370 375 380	1215
gga cat aaa cca gat aat att aag gga aat ttg gaa ttc aaa aat gtt Gly His Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe Lys Asn Val 385 390 395	1263
cac ttc agt tac cct tct cga aaa gaa gtt aag atc tta aag ggt ctc His Phe Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu Lys Gly Leu 400 405 410	1311
aac ctg aag gtt cag agt ggg cag aca gtg gcg ctg gtt ggg aac agt Asn Leu Lys Val Gln Ser Gly Gln Thr Val Ala Leu Val Gly Asn Ser 415 420 425 430	1359
ggc tgc ggg aag agc acg acc gtg cag ctg atg cag agg ctc tat gac Gly Cys Gly Lys Ser Thr Thr Val Gln Leu Met Gln Arg Leu Tyr Asp 435 440 445	1407
ccc aca gat ggc atg gtc tgt att gat gga cag gac att agg acc ata Pro Thr Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile Arg Thr Ile 450 455 460	1455
aat gta agg cat ctt cgg gaa att act ggt gtg gtg agt cag gag cct Asn Val Arg His Leu Arg Glu Ile Thr Gly Val Val Ser Gln Glu Pro 465 470 475	1503
gtg ttg ttt gcc acc acg ata gct gaa aac att cgc tat ggc cgc gaa Val Leu Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr Gly Arg Glu 480 485 490	1551
aat gtc acc atg gat gag att gag aaa gct gtt aag gaa gcc aat gcc Asn Val Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu Ala Asn Ala 495 500 505 510	1599
tat gat ttt atc atg aaa cta cct aat aaa ttt gac act ctg gtt gga Tyr Asp Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr Leu Val Gly 515 520 525	1647
gag aga ggg gcc cgg ctg agt ggt gga cag aaa cag aga atc gcc att Glu Arg Gly Ala Arg Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile 530 535 540	1695
gct cgg gcc ctg gtt cgc aac ccc aag att ctt ctg ctg gat gag gca Ala Arg Ala Leu Val Arg Asn Pro Lys Ile Leu Leu Leu Asp Glu Ala 545 550 555	1743
acg tca gct ctg gac act gaa agt gaa gca gtg gtt cag gtg gcc ctg Thr Ser Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln Val Ala Leu 560 565 570	1791
gat aag gcc aga aaa ggc cgg act acc att gtg ata gct cat cgt ttg Asp Lys Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala His Arg Leu 575 580 585 590	1839
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Ser Thr Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp Asp Gly Val	595	600	605	
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Ile Val Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu Lys Gly Ile	610	615	620	
tac ttc aaa ctt gtc aca atg cag aca aga gga aat gaa att gag tta	1983			
Tyr Phe Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu Ile Glu Leu	625	630	635	
gaa aat gcc act ggt gaa tcc aaa agt gaa agt gat gcc ttg gaa atg	2031			
Glu Asn Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala Leu Glu Met	640	645	650	
tct cca aaa gat tca ggg tcc agt tta ata aaa aga aga tca act cgc	2079			
Ser Pro Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg Ser Thr Arg	655	660	665	670
agg agt ata cat gca cca caa ggc caa gac aga aag ctt ggt aca aaa	2127			
Arg Ser Ile His Ala Pro Gln Gly Gln Asp Arg Lys Leu Gly Thr Lys	675	680	685	
gag gac ttg aat gag aat gtt cct tca gtt tcc ttc tgg agg att ctg	2175			
Glu Asp Leu Asn Glu Asn Val Pro Ser Val Ser Phe Trp Arg Ile Leu	690	695	700	
aag ctg aac tca act gaa tgg cct tat ttt gtg gtt ggt ata ttt tgt	2223			
Lys Leu Asn Ser Thr Glu Trp Pro Tyr Phe Val Val Gly Ile Phe Cys	705	710	715	
gct att ata aac gga ggc ctg caa cca gca ttt tca ata ata ttt tca	2271			
Ala Ile Ile Asn Gly Gly Leu Gln Pro Ala Phe Ser Ile Ile Phe Ser	720	725	730	
agg att ata ggg atc ttt acc cga gat gag gat cct gaa aca aaa cga	2319			
Arg Ile Ile Gly Ile Phe Thr Arg Asp Glu Asp Pro Glu Thr Lys Arg	735	740	745	750
cag aat agt aac atg ttt tct gta ttg ttt cta gtc ctt gga att att	2367			
Gln Asn Ser Asn Met Phe Ser Val Leu Phe Leu Val Leu Gly Ile Ile	755	760	765	
tct ttt att aca ttt ttc ctg cag ggc ttc aca ttt ggc aaa gct ggg	2415			
Ser Phe Ile Thr Phe Phe Leu Gln Gly Phe Thr Phe Gly Lys Ala Gly	770	775	780	
gag atc ctc act aag cgg ctt cga tac atg gtt ttc aga tcc atg ctg	2463			
Glu Ile Leu Thr Lys Arg Leu Arg Tyr Met Val Phe Arg Ser Met Leu	785	790	795	
aga cag gat gtc agc tgg ttt gat gac cct aaa aac acc act gga gca	2511			
Arg Gln Asp Val Ser Trp Phe Asp Asp Pro Lys Asn Thr Thr Gly Ala	800	805	810	
ttg aca acc agg ctt gcc aat gat gcg gct caa gtt aaa ggg gct ata	2559			
Leu Thr Thr Arg Leu Ala Asn Asp Ala Ala Gln Val Lys Gly Ala Ile	815	820	825	830
ggg tcc agg ctt gct gtc att acc cag aat ata gca aat ctt ggg aca	2607			
Gly Ser Arg Leu Ala Val Ile Thr Gln Asn Ile Ala Asn Leu Gly Thr				

835	840	845	
ggc att att ata tcc tta atc tat	ggg tgg caa tta aca ctt tta ctc		2655
Gly Ile Ile Ile Ser Leu Ile Tyr	Gly Trp Gln Leu Thr Leu Leu Leu		
850	855	860	
tta gca att gta ccc atc att gca	ata gca gga gtt gtt gaa atg aaa		2703
Leu Ala Ile Val Pro Ile Ile Ala	Ile Ala Gly Val Val Glu Met Lys		
865	870	875	
atg ttg tct gga caa gca ctg aaa	gat aag aaa gag cta gaa gga gct		2751
Met Leu Ser Gly Gln Ala Leu Lys	Asp Lys Lys Glu Leu Glu Gly Ala		
880	885	890	
ggg aag att gct aca gaa gcc atc	gaa aac ttc cga act gtt gtt tct		2799
Gly Lys Ile Ala Thr Glu Ala Ile	Glu Asn Phe Arg Thr Val Val Ser		
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ttg act cgg gag cag aag ttt gaa	tac atg tat gca cag agt ttg caa		2847
Leu Thr Arg Glu Gln Lys Phe Glu	Tyr Met Tyr Ala Gln Ser Leu Gln		
915	920	925	
gta cca tac aga aac tct ttg agg	aaa gca cac atc ttc ggg gtc tca		2895
Val Pro Tyr Arg Asn Ser Leu Arg	Lys Ala His Ile Phe Gly Val Ser		
930	935	940	
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Phe Ser Ile Thr Gln Ala Met Met	Tyr Phe Ser Tyr Ala Gly Cys Phe		
945	950	955	
cgg ttt ggt gcc tac ttg gtg gca	aat gag ttc atg aac ttt cag gat		2991
Arg Phe Gly Ala Tyr Leu Val Ala	Asn Glu Phe Met Asn Phe Gln Asp		
960	965	970	
gtt ctt ttg gta ttc tca gct att	gtc ttt ggt gcc atg gca gtg ggg		3039
Val Leu Leu Val Phe Ser Ala Ile	Val Phe Gly Ala Met Ala Val Gly		
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cag gtc agt tca ttt gct cct gac	tat gcc aaa gcc aaa gta tca gca		3087
Gln Val Ser Ser Phe Ala Pro Asp	Tyr Ala Lys Ala Lys Val Ser Ala		
995	1000	1005	
gcc cac gtc atc atg atc att gaa	aaa agc cct ctg att gac agc		3132
Ala His Val Ile Met Ile Ile Glu	Lys Ser Pro Leu Ile Asp Ser		
1010	1015	1020	
tac agc cct cac ggc ctc aag cca	aat acg ttg gaa gga aat gtg		3177
Tyr Ser Pro His Gly Leu Lys Pro	Asn Thr Leu Glu Gly Asn Val		
1025	1030	1035	
aca ttt aat gag gtc gtg ttc aac	tat ccc act cga cca gac atc		3222
Thr Phe Asn Glu Val Val Phe Asn	Tyr Pro Thr Arg Pro Asp Ile		
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ccc gtg ctc cag ggg ctg agc ctc	gag gtg aag aag ggc cag acg		3267
Pro Val Leu Gln Gly Leu Ser Leu	Glu Val Lys Lys Gly Gln Thr		
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ctg gcc ctc gta ggt agc agt ggc	tgt ggg aag agc aca gtt gtt		3312
Leu Ala Leu Val Gly Ser Ser Gly	Cys Gly Lys Ser Thr Val Val		
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cag ctc cta gag cgc ttc tat gac ccc ttg gct ggt tca gtg cta	3357
Gln Leu Leu Glu Arg Phe Tyr Asp Pro Leu Ala Gly Ser Val Leu	
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Ile Asp Gly Lys Glu Ile Lys His Leu Asn Val Gln Trp Leu Arg	
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Ala His Leu Gly Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys	
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Ser Ile Ala Glu Asn Ile Ala Tyr Gly Asp Asn Ser Arg Val Val	
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Ser His Glu Glu Ile Met Gln Ala Ala Lys Glu Ala Asn Ile His	
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His Phe Ile Glu Thr Leu Pro Glu Lys Tyr Asn Thr Arg Val Gly	
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gac aaa gga acc cag ctc tct ggt ggc cag aaa cag cgc att gcc	3627
Asp Lys Gly Thr Gln Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala	
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ata gct cgc gct ctt gtt aga cag cct cat att ttg ctt ttg gat	3672
Ile Ala Arg Ala Leu Val Arg Gln Pro His Ile Leu Leu Leu Asp	
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Glu Ala Thr Ser Ala Leu Asp Thr Glu Ser Glu Lys Val Val Gln	
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gaa gcc ctg gac aaa gcc aga gaa ggc cgc acc tgc att gtg atc	3762
Glu Ala Leu Asp Lys Ala Arg Glu Gly Arg Thr Cys Ile Val Ile	
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gcc cac cgc ttg tcc acc atc cag aat gca gat tta ata gtg gtg	3807
Ala His Arg Leu Ser Thr Ile Gln Asn Ala Asp Leu Ile Val Val	
1235 1240 1245	
ttt cag aat ggc aaa gtc aag gag cat ggc aca cat caa cag ctg	3852
Phe Gln Asn Gly Lys Val Lys Glu His Gly Thr His Gln Gln Leu	
1250 1255 1260	
ctg gct cag aaa ggc atc tat ttt tcc atg atc agt gtc cag gct	3897
Leu Ala Gln Lys Gly Ile Tyr Phe Ser Met Ile Ser Val Gln Ala	
1265 1270 1275	
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Gly Ala Lys Arg	
1280	
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gtagaactac ctgtttaaca tttcttgctg caactgaaga tcattccacc aagttcagag	4072

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 taatttttgt ttatatTTTTa tttgtaactt actgctttgc tgaaagatta tagaagtgg 4252
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Val Ser Thr Phe Ala Met Phe Arg Tyr Ser Asn Trp Leu Asp Arg Leu
 35 40 45

Tyr Met Leu Val Gly Thr Met Ala Ala Ile Ile His Gly Ala Ala Leu
 50 55 60

Pro Leu Met Met Leu Val Phe Gly Asn Met Thr Asp Ser Phe Ala Asn
 65 70 75 80

Ala Gly Ile Ser Arg Asn Lys Thr Phe Pro Val Ile Ile Asn Glu Ser
 85 90 95

Ile Thr Asn Asn Thr Gln His Phe Ile Asn His Leu Glu Glu Glu Met
 100 105 110

Thr Thr Tyr Ala Tyr Tyr Tyr Ser Gly Ile Gly Ala Gly Val Leu Val
 115 120 125

Ala Ala Tyr Ile Gln Val Ser Phe Trp Cys Leu Ala Ala Gly Arg Gln
 130 135 140

Ile Leu Lys Ile Arg Lys Gln Phe Phe His Ala Ile Met Arg Gln Glu
 145 150 155 160

Ile Gly Trp Phe Asp Val His Asp Val Gly Glu Leu Asn Thr Arg Leu
 165 170 175

Thr Asp Asp Val Ser Lys Ile Asn Glu Gly Ile Gly Asp Lys Val Gly
180 185 190

Met Phe Phe Gln Ser Ile Ala Thr Phe Phe Thr Gly Phe Ile Val Gly
195 200 205

Phe Thr Pro Gly Trp Lys Leu Thr Leu Val Ile Leu Ala Ile Ser Pro
210 215 220

Val Leu Gly Leu Ser Ala Ala Ile Trp Ala Lys Ile Leu Ser Ser Phe
225 230 235 240

Thr Asp Lys Glu Leu Leu Ala Tyr Ala Lys Ala Gly Ala Val Ala Glu
245 250 255

Glu Val Leu Ala Ala Ile Arg Thr Val Ile Ala Phe Gly Gly Gln Lys
260 265 270

Lys Glu Leu Glu Arg Tyr Asn Lys Asn Leu Glu Glu Ala Lys Arg Ile
275 280 285

Gly Ile Lys Lys Ala Ile Thr Ala Asn Ile Ser Ile Gly Ala Ala Phe
290 295 300

Leu Leu Ile Tyr Ala Ser Tyr Ala Leu Ala Phe Trp Tyr Gly Thr Ser
305 310 315 320

Leu Val Leu Ser Ser Glu Tyr Thr Ile Gly Gln Val Leu Thr Val Phe
325 330 335

Phe Ser Val Leu Ile Gly Ala Phe Ser Ile Gly Gln Ala Ser Pro Ser
340 345 350

Ile Glu Ala Phe Ala Asn Ala Arg Gly Ala Ala Tyr Glu Ile Phe Lys
355 360 365

Ile Ile Asp Asn Lys Pro Ser Ile Asp Ser Tyr Ser Lys Ser Gly His
370 375 380

Lys Pro Asp Asn Ile Lys Gly Asn Leu Glu Phe Lys Asn Val His Phe
385 390 395 400

Ser Tyr Pro Ser Arg Lys Glu Val Lys Ile Leu Lys Gly Leu Asn Leu
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435 440 445

Asp Gly Met Val Cys Ile Asp Gly Gln Asp Ile Arg Thr Ile Asn Val
450 455 460

Arg His Leu Arg Glu Ile Thr Gly Val Val Ser Gln Glu Pro Val Leu
465 470 475 480

Phe Ala Thr Thr Ile Ala Glu Asn Ile Arg Tyr Gly Arg Glu Asn Val
485 490 495

Thr Met Asp Glu Ile Glu Lys Ala Val Lys Glu Ala Asn Ala Tyr Asp
500 505 510

Phe Ile Met Lys Leu Pro Asn Lys Phe Asp Thr Leu Val Gly Glu Arg
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Gly Ala Arg Leu Ser Gly Gly Gln Lys Gln Arg Ile Ala Ile Ala Arg
530 535 540

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Ala Leu Asp Thr Glu Ser Glu Ala Val Val Gln Val Ala Leu Asp Lys
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Ala Arg Lys Gly Arg Thr Thr Ile Val Ile Ala His Arg Leu Ser Thr
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Val Arg Asn Ala Asp Val Ile Ala Gly Phe Asp Asp Gly Val Ile Val
595 600 605

Glu Lys Gly Asn His Asp Glu Leu Met Lys Glu Lys Gly Ile Tyr Phe
610 615 620

Lys Leu Val Thr Met Gln Thr Arg Gly Asn Glu Ile Glu Leu Glu Asn
625 630 635 640

Ala Thr Gly Glu Ser Lys Ser Glu Ser Asp Ala Leu Glu Met Ser Pro
645 650 655

Lys Asp Ser Gly Ser Ser Leu Ile Lys Arg Arg Ser Thr Arg Arg Ser

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Ile	His	Ala	Pro	Gln	Gly	Gln	Asp	Arg	Lys	Leu	Gly	Thr	Lys	Glu	Asp				
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Leu	Asn	Glu	Asn	Val	Pro	Ser	Val	Ser	Phe	Trp	Arg	Ile	Leu	Lys	Leu				
	690					695					700								
Asn	Ser	Thr	Glu	Trp	Pro	Tyr	Phe	Val	Val	Gly	Ile	Phe	Cys	Ala	Ile				
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Ile	Asn	Gly	Gly	Leu	Gln	Pro	Ala	Phe	Ser	Ile	Ile	Phe	Ser	Arg	Ile				
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Ile	Gly	Ile	Phe	Thr	Arg	Asp	Glu	Asp	Pro	Glu	Thr	Lys	Arg	Gln	Asn				
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Ser	Asn	Met	Phe	Ser	Val	Leu	Phe	Leu	Val	Leu	Gly	Ile	Ile	Ser	Phe				
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Ile	Thr	Phe	Phe	Leu	Gln	Gly	Phe	Thr	Phe	Gly	Lys	Ala	Gly	Glu	Ile				
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Leu	Thr	Lys	Arg	Leu	Arg	Tyr	Met	Val	Phe	Arg	Ser	Met	Leu	Arg	Gln				
785					790					795					800				
Asp	Val	Ser	Trp	Phe	Asp	Asp	Pro	Lys	Asn	Thr	Thr	Gly	Ala	Leu	Thr				
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Thr	Arg	Leu	Ala	Asn	Asp	Ala	Ala	Gln	Val	Lys	Gly	Ala	Ile	Gly	Ser				
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Arg	Leu	Ala	Val	Ile	Thr	Gln	Asn	Ile	Ala	Asn	Leu	Gly	Thr	Gly	Ile				
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Ile	Val	Pro	Ile	Ile	Ala	Ile	Ala	Gly	Val	Val	Glu	Met	Lys	Met	Leu				
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Ser	Gly	Gln	Ala	Leu	Lys	Asp	Lys	Lys	Glu	Leu	Glu	Gly	Ala	Gly	Lys				
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Ile	Ala	Thr	Glu	Ala	Ile	Glu	Asn	Phe	Arg	Thr	Val	Val	Ser	Leu	Thr				
			900					905					910						

Arg Glu Gln Lys Phe Glu Tyr Met Tyr Ala Gln Ser Leu Gln Val Pro
915 920 925

Tyr Arg Asn Ser Leu Arg Lys Ala His Ile Phe Gly Val Ser Phe Ser
930 935 940

Ile Thr Gln Ala Met Met Tyr Phe Ser Tyr Ala Gly Cys Phe Arg Phe
945 950 955 960

Gly Ala Tyr Leu Val Ala Asn Glu Phe Met Asn Phe Gln Asp Val Leu
965 970 975

Leu Val Phe Ser Ala Ile Val Phe Gly Ala Met Ala Val Gly Gln Val
980 985 990

Ser Ser Phe Ala Pro Asp Tyr Ala Lys Ala Lys Val Ser Ala Ala His
995 1000 1005

Val Ile Met Ile Ile Glu Lys Ser Pro Leu Ile Asp Ser Tyr Ser
1010 1015 1020

Pro His Gly Leu Lys Pro Asn Thr Leu Glu Gly Asn Val Thr Phe
1025 1030 1035

Asn Glu Val Val Phe Asn Tyr Pro Thr Arg Pro Asp Ile Pro Val
1040 1045 1050

Leu Gln Gly Leu Ser Leu Glu Val Lys Lys Gly Gln Thr Leu Ala
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1100 1105 1110

Leu Gly Ile Val Ser Gln Glu Pro Ile Leu Phe Asp Cys Ser Ile
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Ala Glu Asn Ile Ala Tyr Gly Asp Asn Ser Arg Val Val Ser His
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Glu Glu Ile Met Gln Ala Ala Lys Glu Ala Asn Ile His His Phe
1145 1150 1155

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